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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/650,606	08/28/2003	Paul M. Doane	BOEI-1-1204	8312

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EXAMINER

CHIN, GARY

ART UNIT	PAPER NUMBER
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3661

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/650,606

Applicant(s)

DOANE, PAUL M.

Examiner

Gary Chin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-66 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-66 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claims 1-66 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claims 1, 20 and 48, there is no clear recitation therein as to what is being used to provide the control signals to keep the aircraft at a predetermined station relative to the other of the plurality of aircraft in the formation flight. It is suggested to insert the phrase “based upon the sensed position of the at least one other aircraft” after “formation flight” at the end of claims 1 and 48 and on line 11 of claim 20 respectively, to rectify the aforementioned problem.

As per claim 1, line 3; claim 20, line 4 and claim 48, line 9, “an aircraft” should be “the aircraft” respectively, in order to avoid the antecedent basis problem.

As per claim 1, line 9; claim 12, line 2; claim 13, line 3; claim 14, line 3 (on both occurrences); claim 17, line 4; claim 18, lines 3 (on both occurrences) and 4; claim 20, lines 7, 10, 14 and 18; claim 30, line 3 (on both occurrences); claim 33, lines 3 (on both occurrences) and 4; claim 48, lines 12 and 15; claim 59, line 2; claim 60, line 4; claim 61, line 3 (on both occurrences); claim 64, line 4 and claim 65, lines 3 (on both occurrences) and 4, before “other”, the words “at least one” should be inserted respectively, in order to be consistent.

As per claim 19, the dependency should be “claim 17” in order to establish the antecedent basis for “the second predetermined threshold”.

As per claim 35, line 7, the phrase “sensing position of other aircraft” should be “sensing positions of the other aircraft” in order to avoid the antecedent basis problem. Similarly, on line

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8, the phrase “comparing position of the aircraft with position of other aircraft” should be “comparing the position of the aircraft with the positions of the other aircraft”. Likewise, the phrase “automatically adjusting position of the aircraft relative to positions of the other aircraft” on lines 10-11 should be “automatically adjusting the position of the aircraft relative to the positions of the other aircraft”.

As per claim 36, line 1, “automatically adjusting” should be “said automatically adjusting”.

As per claim 37, line 2, “other aircraft” should be “the other aircraft”.

As per claims 38 and 39, both on line 1, “position” should be “said position” respectively.

As per claims 42 and 46, both on line 1, after “wherein”, the words “said step of” should be inserted respectively.

Claim(s) that have not been specifically indicated is/are rejected for incorporating the above error(s) from its/their parent claim(s) by dependency.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2, 9-10, 13-14, 35-36, 41-42, 48-49, 52, 56-57 and 60-61 rejected under 35 U.S.C. 102(b) as being anticipated by Tran (patent no. 6262679).

As per claims 1, 10, 35-36, 48-49 and 57, figure 2 and column 14 of the Tran reference clearly disclose the claimed system and method for autonomously keeping an aircraft's station in

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a formation flight of a plurality of aircraft including a navigation system (item 40) for determining a position of the aircraft, a data link (item 34) to allow the aircraft to communicate data with the other aircraft, a sensor (item 36) such as a radar to sense position of other aircraft and a processor (item 18) to provide control signals to keep the aircraft at a predetermined station relative to the other aircraft in the formation flight.

As per claims 2 and 52, the claimed gps inertial navigation system is shown in item 40, figure 2 of the Tran reference.

As per claims 9 and 56, the claimed flight plan is disclosed in column 9, lines 8-24 of the Tran reference.

As per claims 13-14, 41-42 and 60-61, the claimed collision avoidance maneuver is taught in column 12, lines 45-67 of the Tran reference.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3-8, 11-12, 15-16, 37-40, 43-44, 50-51, 53-55, 58-59 and 62-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tran (patent no. 6262679).

As per claims 3-4, 38-39 and 50-51, the claimed position uncertainty of the navigation system is merely dictated by the accuracy of a particular navigation system used in the Tran system and would have been obvious for one skilled in the art to choose any commercially available navigation system that would match the uncertainty as required.

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As per claims 5 and 52, the gps as shown in item 40, figure 2 of the Tran reference clearly can process the PY gps signals as claimed.

As per claims 6-8 and 53-55, the claimed specific types of data link have not been disclosed in the Tran teaching. However, such claimed types of data link are well known in the art and commercially available. It would have been readily apparent for one skill in the art to choose any one of these well-known data links based on the particular mission requirement.

As per claims 11-12, 15-16, 37, 40, 43-44, 58-59 and 62-63, the claimed predetermined distance for sensing other aircraft, the predetermined station distance, the first predetermined time or distance threshold are merely dictated by the particular flight formation and/or mission requirement and would have been obvious for one skilled in the art to select the aforementioned predetermined parameters based upon the mission requirement.

6. Claims 20-34 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

7. Claims 17-19, 45-47 and 64-66 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

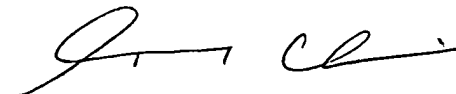
8. The additional reference(s) is/are cited to show the related system(s). Applicant(s) should consider them carefully when responding to the current office action.

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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary Chin whose telephone number is (703) 305-9751. The examiner can normally be reached on Monday-Friday 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G Black can be reached on (703) 305-8233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



GARY CHIN
PRIMARY EXAMINER